



# Materials Safety

## Fire Highlights Importance of Considering Safety in All Stages of Research

*A Message from  
Rick Kelly*

**Safety requires constant vigilance.  
Review safety considerations at every  
step of your experiment.**

**—Mark Alper,  
Division Deputy Director**



### Issue

A fire in the Molecular Foundry occurred when a post doc placed a plastic graduated cylinder on a combination hot plate/magnetic stirrer intending only to stir the contents. In fact the apparatus was hot. He left the room and 10 minutes later the fire alarm was triggered and the building evacuated.

When setting up the experiment, the post doc did not notice that the heating element was turned on. This caused the plastic to melt and

then smolder. While the fire was small, it generated a lot of smoke. Thinking about safety at all times would have prevented this incident.

The Division expects each scientist to carefully consider the potential safety problems during all phases of their research planning and execution. Sometimes this is difficult when performing routine work that has been performed many times previously without incident. However, as when driving home at the end of each day, it is important to

maintain a high level of situational awareness, as a single failure may lead to dire consequences.

For each part of an experiment, ask yourself:

- What could go wrong
- How likely is each failure mode
- How serious would be the resulting accident
- How can I eliminate the hazard, reduce the probability of the event or limit the consequences



*Damaged hot plate/magnetic stirrer*



*Partially melted graduated cylinder*

